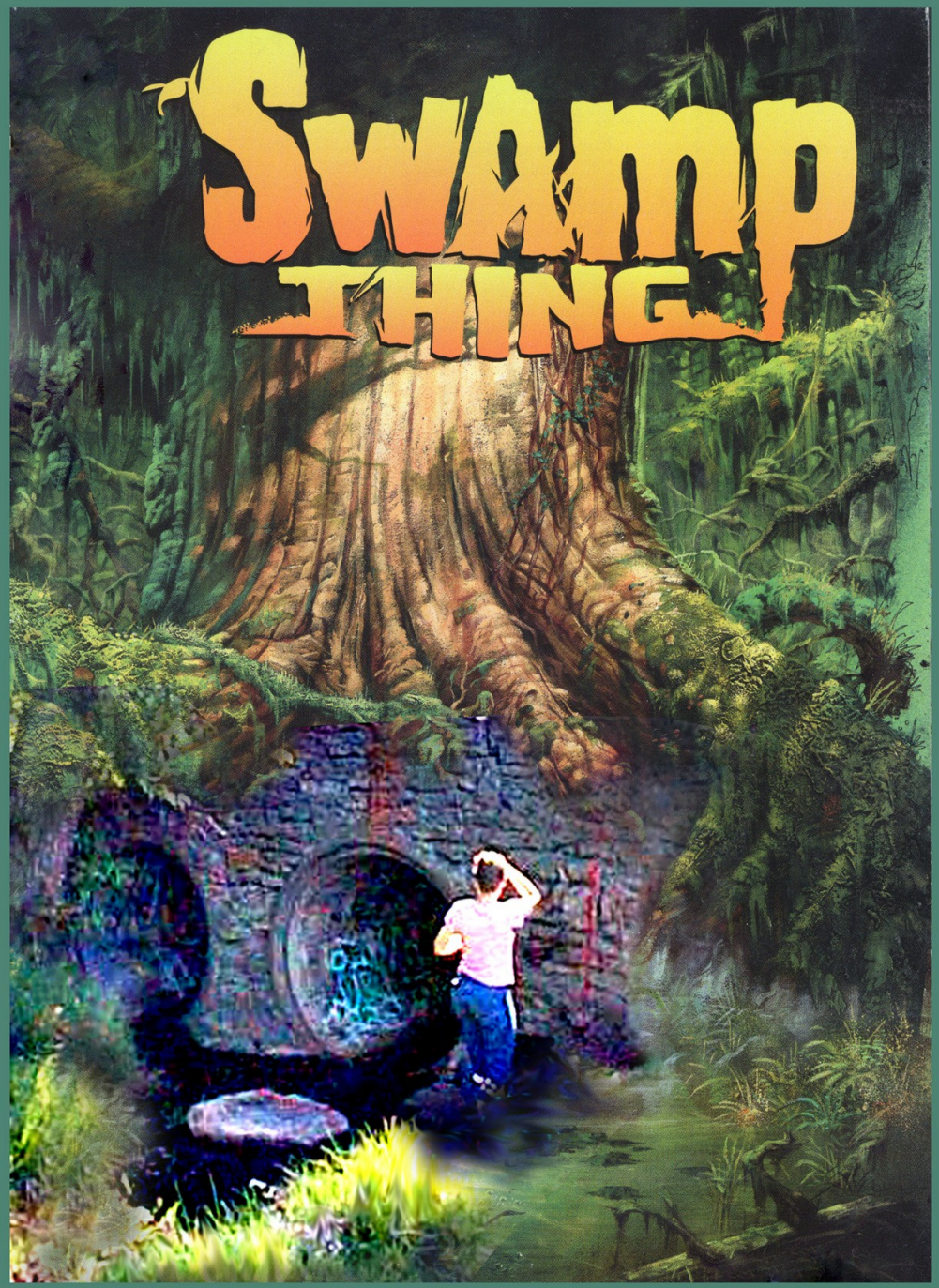
# California's Surface Water Ambient Monitoring Program

# "SWAMP" Update - 2005

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS


SWAMP
THING

# Consumer Product Warning

- We are driving the car as we build it.
- Required:
  - Patience
  - Sense of humor
  - Play well with others

# “Tools” and “Rules”

- SWAMP Strategy for Data Comparability and Data Accessibility
  - “Rule”
  - SWRCB-funded Programs/Projects
    - Grant Projects (PRISM), TMDLs, etc.

# “Tools” and “Rules”

- SWAMP Strategy for Data Comparability and Data Accessibility
- “Tools” for other Monitoring & Assessment Programs
  - Standardized Field Methods
  - Lab Analysis Performance Criteria
  - QAPP
  - Database
  - Training and Templates

# SWAMP: Required by AB 982

- Comprehensive state program (surface water)
  - All water bodies
  - All beneficial uses
  - All CWA & Water Code responsibilities

# The Challenge: CA

- 190 hydrologic units (655 hydrologic sub-areas)
- 211,000+ miles rivers and streams
- Over 10,000 lakes (1.6+ million acres)
- Over 1,300,000+ acres of bays and estuaries
- 1,609 miles of coastline
- Wetlands?

# Core Beneficial Uses

- Safe to Drink
- Safe to Swim
- Safe to Fish
- Healthy aquatic life

# The Regulatory Challenge:

- CWA section 305(b) report
- CWA section 303(d) list, TMDLs
- Porter Cologne, Basin Plans
- Implementation, 319h
- CWA section 106(e)

# Why Monitor?

- Status
- Trends
- ID specific water quality problems
- Gather information to design pollution prevention or remediation programs
- Determine whether program goals are being met
  - **Compliance with regulations**
  - **Implementation of control actions**

# SWAMP: Required by AB 982

- Comprehensive state program (surface water)
- Coordinate all Board ambient water quality monitoring Programs/projects
- High Quality Data
- Comparable data
- Accessible

# SWAMP November 2000

- Proposed a cost efficient monitoring program to meet all CWA needs for all water types and pollutant sources
- Requested
  - $59 to $115 million ($3,400,000)
  - 87 to 132 PYs (17 PYs)
  - WDPF surcharge

# 2003-04 Reality Check

- Existing goals don't match the fiscal reality or current program
- Need realistic short-term objectives (priorities)
- Need longer-term implementation strategy
- Need to pursue collaborative alternatives to data generation

# Implementation Strategy

- Monitoring Program Strategy
- Monitoring Objectives
- Monitoring Design
- Core Indicators of Water Quality
- Quality Assurance
- Data Management
- Data Analysis/Assessment (CALM)
- Reporting
- Programmatic Evaluation
- General Support and Infrastructure

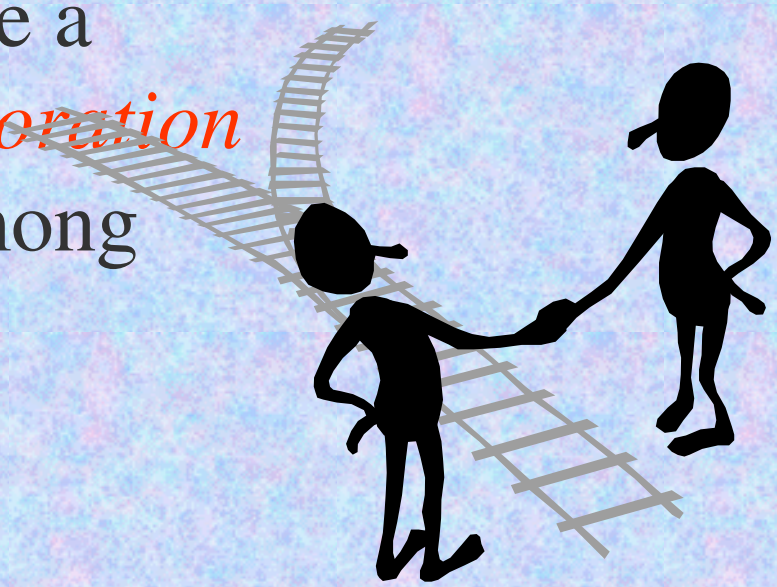
- SWAMP is a state framework to coordinate consistent and scientifically defensible methods and strategies for improving water quality monitoring, assessment, and reporting.

# Why Focus on Collaboration & Comparability?

- Critical differences in project design, methods, data analysis, and data management make it difficult for monitoring information to be shared by more potential data users.

# Collaboration and Comparability

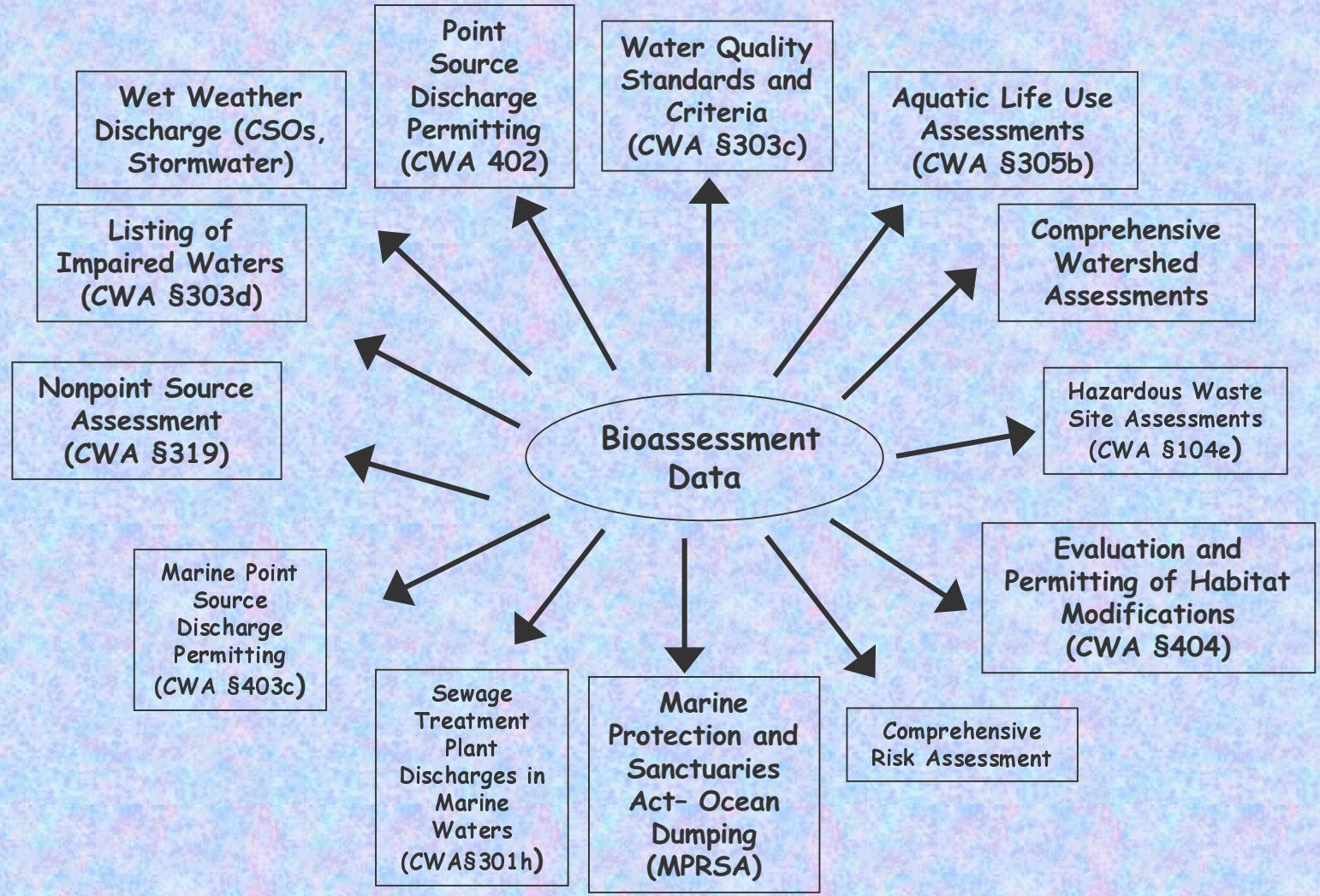
- Development of a national and state monitoring strategy requires that we create a framework for *collaboration* and *comparability* among programs



# Building “Comparability”

- Common Indicators
- Methods
- Quality Assurance Program
- Database w/ metadata
- Information Exchange Network
- Tool Box and Training

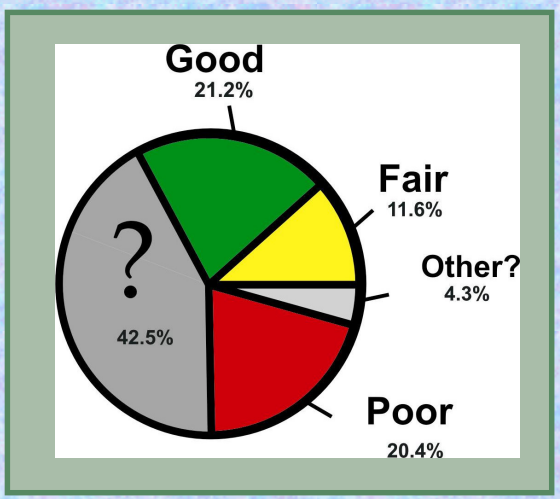
# Use of Bioassessment in Water Quality Monitoring



# Bioassessment Application: Condition Assessments (EMAP/ CMAP)

Objective: Use of probabilistic surveys to answer basic WQ questions:

- What is the biotic condition of the state's streams?
- Is it getting better? Is it getting worse?
- Are we allocating $$$$ wisely?

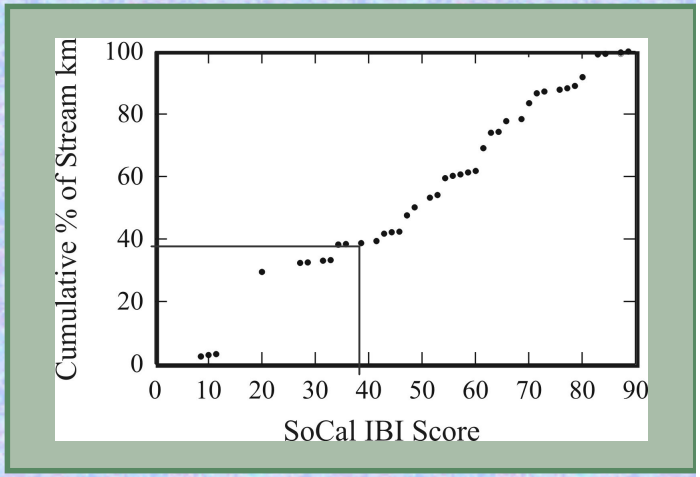



Condition Assessments: SoCal, NorCal, statewide

CMAP: also apply these questions to non-point source (NPS) stressor categories:

- Agriculture, Urban, Forested, Other

Appoximately 270 sites collected under EMAP and an additional 200-250 will be collected under CMAP



# Method Comparability

- Consistent and objective sampling, analysis and assessment methods:
  - Sampling:  standard field protocols;
    - Training Module (CD)
  - Analysis:  performance based;
  - Assessment:  303(d) Policy

# QA strategy

- QA team
- Consistent data quality assurance:
  - Statewide QMP, 1st Ed.
- QA Tool Box:
  - Training Courses
  - Template, Models, “Boilerplate”
  - Expert System

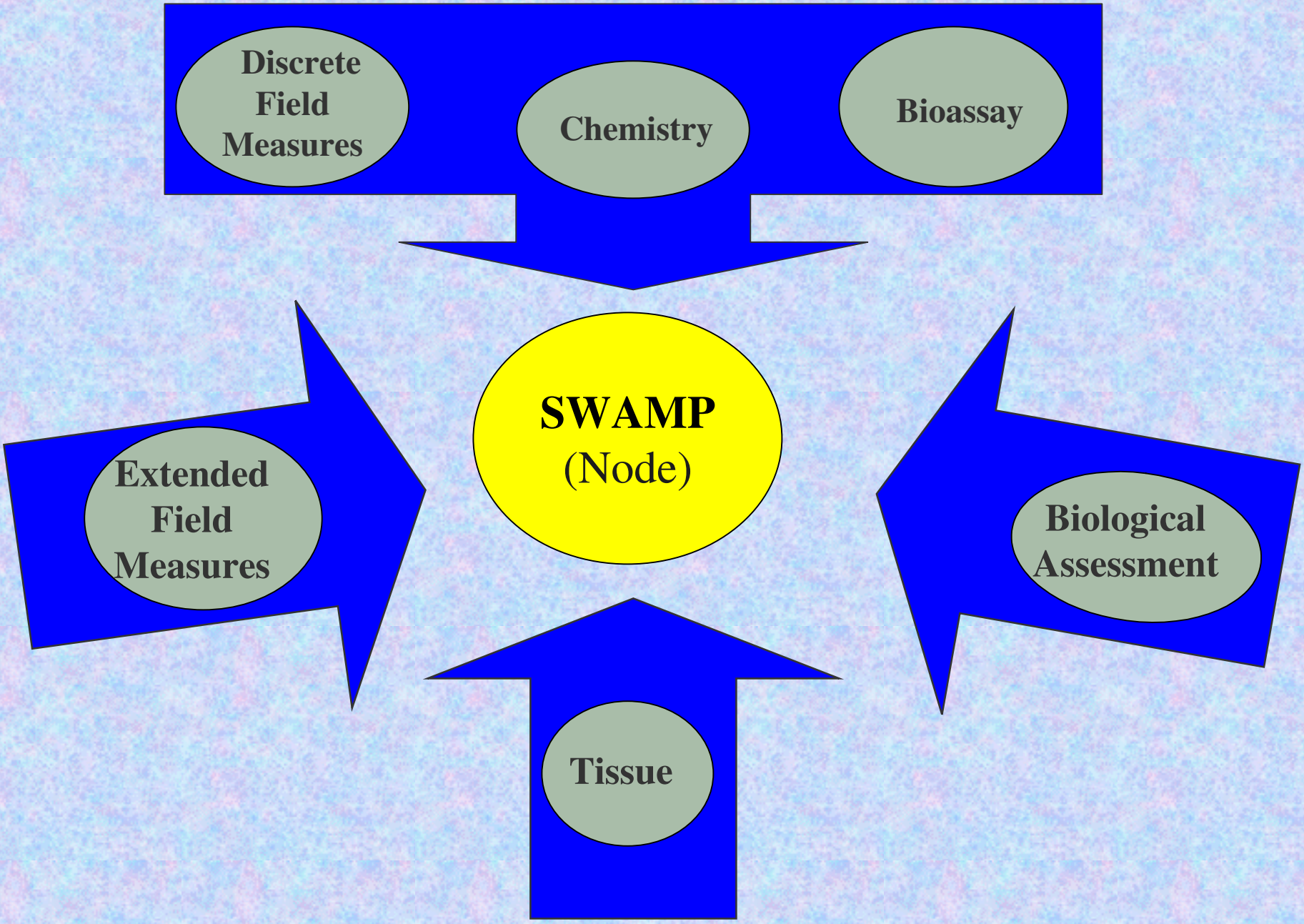
# QAPP Implementation

- Protocols
- Audits (lab, field, regions)
- Intercomparison Exercises
- Performance Evaluation Studies
- QMP revision
- Data Verification/Validation
- Toolbox

# Data Comparability

- Inclusive of all types of water quality monitoring -
  - **chemical, toxicity and field data**
  - **tissue, bacteria indicators, biological, habitat characteristics**
- Training
  - **On-site**
  - **User's guide**

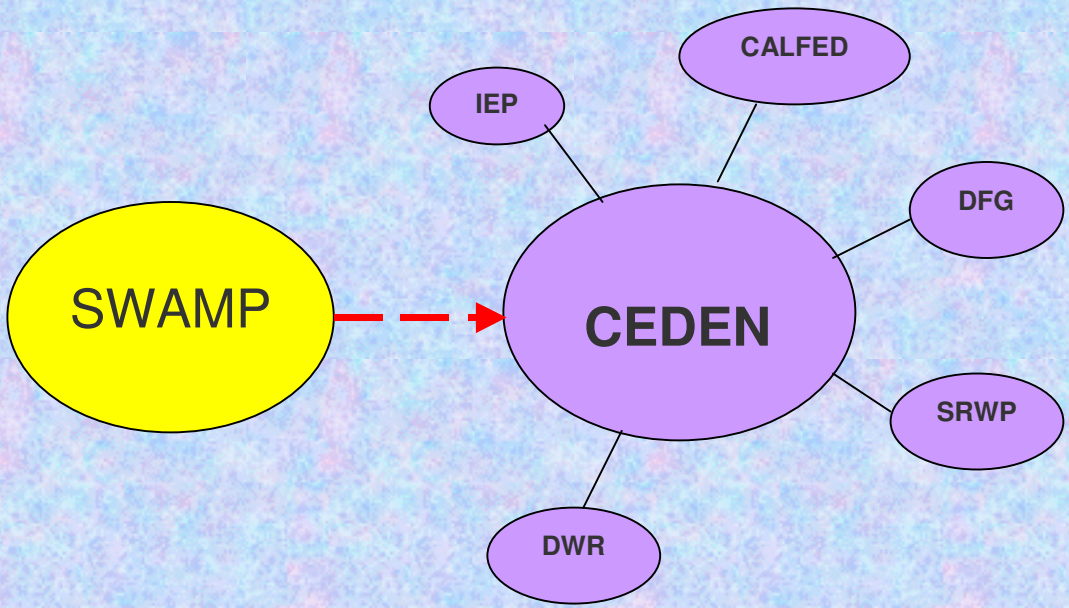
# SWAMP "Big Picture"



# Data Integration & Accessibility

- Integrated data management
- Public Access
- Share information, costs and applications

# Database Integration




SWAMP = Surface Water Ambient Monitoring Program
BDAT = Bay-Delta and Tributaries Database
IEP = Interagency Ecological Program
DFG = Department of Fish & Game
SRWP = Sacramento River Watershed Program
DWR = Department of Water Resources
CALFED = State and Federal Interagency Group

# CA Environmental Data Network (CEDEN) - 50 Entities







**Background/Distributed Data Management System**

# SWAMP Training Tract

-All SWAMP “partners”

-Use of SWAMP “toolbox”

- Introductory Monitoring Design
- Advanced Monitoring Design
- SWAMP Field Methods (CD rom)
- Introductory Quality Assurance
- SWAMP Advisor
- SWAMP Data Management
- SWAMP Collaboration Workshop
- Annual mtg - CA Bioassessment Workgroup
- SWAMP for Ag. Coalitions
- Monitoring Grant Project Effectiveness

# Next 24 Months

- Continue statewide & regional assessments
- "Flesh-out" SWAMP Strategy
- Formation of NPS Monitoring Tracking Council
- Intra- & Inter-agency Outreach/Education
- Continue Training
- Reporting (305b, RB assessments)
- Public fact sheets
- Continue data integration
- 2nd. Edition QMP
- 2nd SPARC (external peer review)

# Outstanding Issues - Insufficient Resources

- Increase in SWAMP “partners”
- Consistency/Comparability = Training
- QA Coordination
- Requesting/receiving data
- Resistance to change

# Questions?

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# What if...

- What if, monitoring programs could pursue their own goals and also integrate information from other sources to support their needs?

# What if...

- What if, data and information from many sources could be aggregated to improve coverage across jurisdictions?

# What if...

- What if we could design programs and use monitoring information collaboratively to better understand how to protect and manage our waters and watersheds?

# What if…

- What if this integration, aggregation, and collaboration enabled us to achieve a better return on public and private investments?

- These “what ifs” can only be realized if we all strive for comparability.